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## DISEASES OF THE SPINE AND OF THE NERVES,

16 PAGES.

### CLINICS.

#### CLINICAL LECTURE.

*Clinical Lecture on Scarlet Fever.*—By Sir WILLIAM JENNER, Bart., M. D., F. R. S., Physician in Ordinary to H. M. the Queen; Prof. of Clinical Medicine in University College and Physician to the Hospital.

Gentlemen: Cases of scarlet fever are not usually admitted into the wards. There is, in fact, a rule of the hospital by which they are excluded, on account of the disease being contagious. But it happened, not long ago, that some cases were admitted by accident, and one child sickened of the disease while in the hospital. I shall take this opportunity of bringing those cases under your notice, together with some others, which will, I hope, impress upon your mind all the most important points to be remembered in regard to this very common disease.

The contagious diseases of this class will

form a large proportion of the acute diseases you will see in your after-life, and it is unfortunate that the great hospitals afford you no opportunity for studying them clinically. And this consideration makes me especially desirous of lecturing to you on these cases.

To-day I shall refer to cases in which the scarlet fever was free from complication, though the general disease—the scarlet fever—ranged in degree from a most trifling affection to one grave enough to kill. The disease in all these cases, however, was scarlet fever pure and simple, the throat affection even being trifling in degree. I will first read to you the abstracts of some cases.

A child eight years old was in the hospital, when, on Sunday, Nov. 15th, she complained of not feeling well, and was feverish; her skin, that is to say, felt hot, and her throat was sore. In the evening of the same day her neck and face were very red, and on the next day, Monday, she was covered

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with the scarlatina rash. The tonsils were then bright red and swollen. Her temperature was  $101.2^{\circ}$ , three degrees higher than in health. On the Wednesday the rash was almost confined to the trunk and legs—i. e., it had faded on the upper part of the trunk and the upper extremities, and had spread downwards to the legs. Her tonsils were still swollen, though no longer red; her temperature was  $100^{\circ}$ . On the Friday the rash had almost disappeared from the legs, and on the Saturday it had gone altogether. Her temperature, however, was still  $100^{\circ}$ , and it continued at that height till Monday, after which it became natural. Her skin was now quite dry and harsh, and there was slight desquamation of the cuticle—that is to say, a separation of the epithelium. This girl affords us a typical case of mild scarlatina.

I will now read to you another case of the same kind. This patient was also a girl, and of the same age. On a Saturday she complained of sore-throat; on the next day, the sore-throat continuing, she was very chilly. On the Monday she had a rash on the face, neck, and chest. On her admission into the hospital these parts were covered with a brilliant scarlet eruption, somewhat elevated, and punctiform. On pressing the skin, the redness disappeared, returning when the pressure was removed. The temperature of this girl was also  $101.2^{\circ}$ , three degrees higher than natural. This was on the third day; for she was taken ill on the Saturday, and in these diseases we always reckon the day on which patients were taken ill as the first day. On Tuesday, the fourth day, the rash was less brilliant on the neck, face, and chest, but was very brilliant on the abdomen and legs, again spreading downwards. The tongue was covered with a thin white fur in the centre, but it was red at the tip and edges, and the papillae were very prominent. The throat was very painful, and the soft palate and the fauces generally were much redder than they should be. The uvula was large and somewhat oedematous—i. e., its loose cellular tissue was the seat of effusion of serum. The tonsils were swollen, but there was no exudation upon them. The temperature was  $100^{\circ}$ . The glands at the angle of the jaw were large and tender. On the Wednesday the rash on the legs was darker, more dusky, and more patchy. The temperature was now only  $99.8^{\circ}$ , still, however,

decidedly higher than normal. On the Thursday the rash was almost gone, and desquamation had commenced. The tongue was clean, but red. One tonsil was still swollen, but the child had no soreness of throat. On Friday, the seventh day, the skin of the legs was still dusky, but desquamation was progressing; the abdomen felt rough; the temperature was  $98.6^{\circ}$  nearly natural. The child was well. There was no albumen in the urine at any time. The pulse was at first a little more frequent than natural, but in neither of these cases was there any other point which it is important for you to know.

Here, again, is the note of another case, very like those I have related to you, but in one particular a rare case. I have seen several such, and believe they are more common than is supposed. It is a case of relapse; the patient had scarlet fever twice in a short time.

A young woman, twenty years of age, was not quite well on a certain Friday, and on the Saturday she had sore-throat, and also a symptom which I have not yet mentioned to you, vomiting—sore-throat and vomiting. On the Sunday, Monday, Tuesday, Wednesday, Thursday, and Friday, she was covered with scarlet-fever rash. On the Saturday the throat was well, and by the Sunday there was no trace of the rash. On the Sunday following she was considered quite well. This was May 7th. Now, on Friday, the 19th of May, nearly a fortnight after she was considered quite well, and nineteen days after the disappearance of the rash, she again felt poorly, and complained of frontal headache and nausea. On the Saturday she had sore-throat, and the same evening the punctiform scarlet-fever rash again came out. On the Monday there was an abundant rash and sore-throat. On the Tuesday the rash was growing faint on the trunk, but was fully out on the lower extremities. There was no more complaint of the throat, and the young woman rapidly recovered. As a rule, the second attack runs a short course; but I have seen a patient die in the relapse.

You will note in all these cases, which are simple scarlatina, that the illness came on abruptly; the patient "took ill" at once. In all of them, too, the first symptom was sore-throat. That was the first thing definitely complained of. This is especially the case in adults; but you have here two chil

dren, whose first complaint was of their sore-throat. The suddenness with which scarlet fever often commences is well illustrated by the description which a patient once gave me of its commencement. She said: "I was quite well when I went down stairs to fetch some water. Crossing the yard, I felt my throat was sore." That was the first intimation that she was ill. Then rapidly follow the other symptoms.

Another symptom present in one of our cases, and which is very commonly one of the first symptoms, especially among children, is vomiting. Vomiting, when very severe and frequently repeated, is said to indicate that the throat will suffer severely, and certainly I have seen some cases which support this opinion.

Another common symptom which you have heard mentioned is frontal headache. In the whole class of diseases of which scarlet fever is a type—viz., the acute specific diseases, headache is common, and it is nearly always frontal. Why it is so I don't know. It has nothing to do with the mucous membranes of the frontal sinuses, though it used to be thought that it had. There is the same headache in typhoid fever, which does not specially affect the mucous membrane of the nose or pharynx; the same in typhus, and in all these diseases. Febrile disturbance with frontal headache should at once awaken in your mind the suspicion that it is with one of the diseases of this class that you have to do.

Again, in all these cases there was at the early part of the illness a little sense of chilliness. That is common. Much more rarely the patient has rigors—distinct shiverings—at the onset of the disease.

The temperature at the onset was not taken in any of our cases. Public institutions do not afford an opportunity of taking the temperature at this early period—the first day. But if you do take it then, you will find it very distinctly elevated— $100^{\circ}$  or  $101^{\circ}$ , or more; and the higher the elevation on this first day of illness, the more probable it is one of these acute specific diseases.

Those, then, were the first symptoms of illness in the cases I have related. On what day did the rash appear? In one of them there was some redness of the face on the first day, and on the second day the rash was out. In another, it did not appear, or we had no evidence that it appeared,

until the third day, when the child came into the hospital. The upper part of the abdomen was then, however, covered so it is probable that it appeared on the preceding day. Thus in each of these two cases it is probable that the true rash came out on the second day. In the case of the young woman, although she was not very well on the Friday, the sore-throat did not begin until the Saturday, and so that was really the first day of the scarlet fever, and her rash was out on the Sunday—the second day. Again, in her next attack she had the sore-throat on the Saturday, and on the Monday she was covered with an abundant rash. Thus in all these cases the rash probably appeared on the second day of the throat affection.

The second day is the common day for the rash to appear in scarlet fever. In the great majority of cases, the patient having sore-throat on the Monday will have the rash out on the Tuesday. Though the second day is the usual date for the appearance of the rash, it is not uncommon for it to be out on the evening of the first day. Now and then it does not come out till the evening of the fourth day, and rarely it does not appear for a week. On any day, then, during the first week the rash may come out. It is said that it sometimes appears later still.

Remember, then, the second day for scarlet fever; the third day for smallpox; the fourth day for measles; the fifth day for typhus; the eighth day for typhoid fever. Those are the typical days. There are frequent deviations, however, in all excepting smallpox, the rash of which very constantly appears on the third day.

The rash in scarlet fever first appears, as it did in these cases, about the neck. Rarely there is a little flush about the face, but the true rash appears about the root of the neck. If you suspect scarlet fever, if the patient is hot and has scarlet lips and a little sore-throat, you throw back the clothes and look for rash at the root of the neck. In measles, you turn back the hair, and look at the margin of the hairy scalp for the first appearance of the rash. In smallpox, the eruption appears first about the upper lip and nose, the centre of the face. In typhoid fever, on the abdomen and thorax. In typhus, the place where the eruption occurs the earliest is often on the backs of the hands, but it occurs also on the trunk.

Note the characters of the rash. It was punctiform. This is its character. It comes out in little scarlet dots, which become more and more numerous till they unite, and the whole surface is bright scarlet. The parts which constitute the dots are the most vascular parts of the skin, the papillæ, and the orifices of the follicles and of the sweat-ducts. The rash is most abundant and darkest where the skin is roughest, on the outer aspect of the limbs. In addition to this scarlet rash, not unfrequently there are a few petechiæ, and that in cases running a perfectly satisfactory course. There are a few extravasations of blood into the substance of the true skin just under the cuticle. These occur most commonly where the skin is the thinnest and most delicate, as at the flexion of the arm. I mention the occurrence of these petechiæ for the benefit of the younger of you, who may think, when first they see a case of scarlet fever with some petechial spots, that the patient is about to be very ill.

So much for the appearance of the rash. Now for its progress. It begins, as I told you, at the root of the neck, and it spreads downwards over the arms and trunk. The parts most affected are usually a little swollen—the hands, for example, are a little puffy. The rash then spreads down to the legs, fading at the upper part of the body, just as it did in the cases I read to you for the purpose of impressing this fact on your memory. It passes down and goes out by the toes, if I may use the expression.

I told you that the rash usually appeared on the second day of illness. On what day does it disappear? The rash disappears, even from the legs, in a typical case, by the seventh day of illness. You may say that it has a course of about a week from the first day of illness. In our cases it disappeared on the sixth or seventh day of the fever. In some books you are told that the rash disappears earlier, in some later; but you will find the seventh day a convenient day to remember. Other days, all being common, are the sixth, eighth, and ninth. Supposing the patient to have sore-throat on a Monday, the rash would probably be gone by the Monday following. It might disappear on the Sunday, or continue till the Tuesday, or even longer, though that is unusual. Now and then it disappears on the fifth day; now and then it continues till the tenth day, and in some cases it has

continued even up to the fourteenth, fifteenth, and sixteenth days. Do not forget this. I have seen such cases myself, and so have most persons who have seen a great many cases.

Desquamation was mentioned as following the disappearance of the rash. Desquamation is the separation of the cuticle, of the epidermis. It commonly begins to separate from the neck, and sometimes will have separated there as a little furfuraceous, branny desquamation at the time the legs are covered with the rash. Sometimes there will be no desquamation for some days after the disappearance of the rash. It is said usually to occur during or soon after the subsidence of the rash, within a week of its disappearance. Now and then, however, a longer time elapses before desquamation commences.

The patient is often, even in the most simple form of scarlatina, when the rash is at its height, pretty thickly covered with sudamina and minute miliary vesicles. Where these have been present the desquamation commences very early, and is very abundant. It is commonly stated that the desquamation is the throwing off of a poison by the epidermis of the skin. I see, however, no ground for believing this. It seems to me that the desquamation is rather due to a certain degree of effusion beneath the cuticle. With a lens you may often find innumerable vesicles where with your hand and naked eye you could detect none. I believe that the real cause of the desquamation is this subcuticular effusion of serum. We have evidence of the occurrence of effusion into other tissues in the slight swelling of the hands, so common during the disease.

If the desquamation is delayed, it is very common to find the first evidence of it about the roots of the nails. Where the rash was very slight, where perhaps the patient was supposed to have had no rash at all, you may often know that the disease was scarlet fever by that condition. Perhaps one member of a family has had sore-throat, while the others have had scarlet fever; that one was poorly, but you did not think that he had the disease. About a week or ten days after the cessation of the illness a little opacity of the cuticle round the root of the nails may be noticed, and then a little peeling there. That is almost conclusive evidence that the illness was scarlatina. Do not forget this. It has often served me

in good practical stead in determining the nature of an illness.

The desquamation lasts, as a rule, about eight days, or a little longer. From eight to fourteen days is the common period; but occasionally it is a long time before the whole of the cuticle has separated—a month, six weeks, or even two months. The thick cuticle on the soles of the feet may be peeling long after the desquamation on the rest of the body has ceased—when the patient is perfectly well, and has been walking about perhaps for some time. This was strongly impressed on my mind not long since. A gentleman came to me who was invited to stay at the house of a friend. He said, "You know I have had scarlet fever; but it is two months ago. Am I safe from giving the disease to any one else? I ought to tell you that the skin has not yet finished coming off the soles of my feet." I examined his feet, and, finding his statement correct, forbade him going; for I thought he might still communicate the disease.

The desquamation, then, may be so slight as to be perceptible only about the root of the nail, or it may be so considerable as to cover the whole place with dust every time the patient shakes himself.

The lips are always scarlet in the earliest stage of scarlet fever, and this fact often gives an importance to the state of the throat. The tongue, as a rule, is also bright red, especially at the tip and edges. The papillae are large, and stand out from the thin white fur with which the dorsum of the tongue is covered, just as you heard in the description of one of our typical cases. As the disease progresses the fur disappears, and then (as there was in one of our cases) a bright-red tongue, the epithelium having been thrown off.

The soft palate and the uvula and the tonsils are also bright red, the tonsils being swollen. The redness in the early stage is distinctly punctiform, and then the spots coalesce. You may sometimes see that the arches of the palate are vivid red, while there is punctiform redness on the hard palate. The mucous membrane partakes of the eruption of the skin. It often does so in measles likewise; the inside of the lips and the hard palate being covered with eruption identical with that on the skin. I told you that the eruption in measles occurs on the fourth day; but on the second or third day, a day or two before it appears

on the skin, the eruption may occasionally be found on the mucous membrane.

In one of our cases it was noted that the glands at the angle of the jaw were swollen and tender. This is according to rule. There is usually a little affection of the glands which receive the absorbents from the soft palate and tonsils. The affection of the throat is the cause of the swelling of the glands. If the throat were not affected the glands would not be swollen. We shall see presently that this is a point of considerable practical importance, and of a good deal of pathological interest. People speak of the scarlet fever process affecting the glands. It is not the scarlet fever process in the ordinary sense of the word—*i. e.*, in the same way that the scarlet fever process affects the soft palate and the skin. The lymphatic glands are affected secondarily to the throat, in consequence of the absorption of something from the surface of the mucous membrane; as much as a bubo in gonorrhoea is the result of the disease of the mucous membrane of the urethra; as much as a bubo in the groin, below Poupart's ligament, after a man has hurt his toe, is the result of the injury to the toe; as much as the swelling of the axillary glands, following a puncture of the finger, is the result of that puncture. You know it is very rare indeed for primary inflammation of the lymphatic glands to occur.

Then the temperature. You notice that it never reached any great height in these cases— $100^{\circ}$ ,  $101^{\circ}$ . In very severe cases it is often much higher— $104^{\circ}$ ,  $105^{\circ}$ ,  $106^{\circ}$ .

It is common in cases as mild as these to have a little wandering at night, a little mental disturbance; and very rarely, even in a mild case, on the date of the appearance of the eruption there is an attack of convulsions.

The pulse in our cases never reached 120. It varied from 80 to 100. In scarlet fever the rule is that the pulse rises to a certain degree of frequency, and then goes down from that point. It does not, as in typhoid fever, go up and down, in one part of the day 120, in another 90, and the patient neither better nor worse—*i. e.*, you could not say, because his pulse was less frequent, that he was better, or worse because his pulse was more frequent. In scarlet fever the pulse steadily rises, and then, if there is no complication, steadily falls.

In all the cases I related to you the con-



stitutional disturbance was very moderate, and the local specific processes—that is, the true scarlatinal processes in the throat and skin—trifling. Bear in mind, however, that in all the scarlet fever group—the acute specific diseases, typhoid, typhus, measles, scarlet fever, smallpox, erysipelas—in all this group there is no necessary relation between the severity of the local specific processes and the severity of the general disease, or between the severity of the general disease and that of the local processes. In our cases they were both mild. If there be a very severe local affection the patient will have a secondary constitutional disturbance due to the local process. If he has a bad sore-throat, he will have a constitutional disturbance dependent on the sore-throat, superadded to the constitutional disturbance of his scarlet fever. But he may have the most intense general disturbance and very little local specific process; the constitutional may be most severe when the local is trifling. The patient may die of the constitutional disturbance when the local process is trifling.

Thus, a man was admitted into this hospital, aged sixty-three. He had been the subject of much mental depression and anxiety. He had for some time lived and slept in the same room and on the same bed with his two children and their mother, all ill with scarlet fever. This man, after he had thus lived and slept in this way for seventeen days, began to complain, on a Sunday, of sore-throat; and on the next day (Monday) he was brought to the hospital insensible. He went in the morning to his place of business, and while there became insensible. When admitted here his respirations were 44; his pulse could not be felt; the surface of the trunk was mottled dusky-red; the outer and posterior aspect of his arms was dusky-red—just the part where the scarlatina eruption occurs and goes most deeply, where the skin is roughest. He rallied about an hour after his admission, so far that his pulse could be counted: it was then 120. His tongue was dry, glazed, and brown. Two hours later there was more duskiness and numerous petechiæ, not merely at a particular part, but over the skin generally. He died at 3 A. M. on the Tuesday. On the Sunday he had sore-throat; on the Monday he was taken at once with the active poison; and on the Tuesday, at three o'clock in the morning, he was dead. After death, what

did we find? Numerous subserous and submucous petechial spots under the endocardium, under the pericardium, under the pleura, under the peritoneum, under the mucous membrane of his stomach, under the mucous membrane of his bowel—everywhere small extravasations of blood. His tonsils were large; there was vascularity of the pharynx; and his spleen was enlarged. That is one of the features of scarlatina; as it is of all these diseases—typhoid, typhus, measles, smallpox, scarlet fever, erysipelas: in all there is softening and enlargement of the spleen.

We examined this man most carefully. I have here long notes of the state of every organ in his body, the microscopic as well as the naked eye appearances of each; but we failed to discover anything more than I have mentioned to you. He died from the poison of scarlet fever. There was no lesion of the heart, brain, lungs, or kidneys, to account for his death; he died from the general condition.

Again, a young woman, aged twenty-one, had been ailing for some time with some soreness of throat, sometimes better, sometimes worse; but she had been subject to sore-throats, and not much importance was attached to this particular attack. On Monday, June 10th, she felt ill, and had increased soreness of throat, but was still able to go out. She passed a restless night, and was decidedly ill on the morning of the next day (Tuesday). On the Tuesday night she was very bad, tossing about, but not delirious. On Wednesday, however, she was violently delirious; several persons were required to keep her in bed. All that night she was violently delirious. On Thursday morning she was insensible; and on Thursday afternoon I saw her. She was then lying on her back, inclined to the right side, resisting all efforts to move her. Her conjunctivæ were considerably injected, as they are in all these cases. It seems as if the capillary circulation generally were in some way interfered with; all the vessels are loaded with blood, and very little circulation going on. Her pupils acted but little. She muttered incoherently, but was quite unable to be aroused so as to exhibit consciousness. She passed urine into the bed freely. There was a thin sero-purulent discharge from the nose and ears. There was no swelling of the glands. She had a dusky-scarlet rash on the trunk and upper extremities; none

on the lower. Her pulse was 180, very weak. Subsequently she became again violently delirious, and died at 10.30 P. M. She was taken ill on the Monday, and died on the Thursday night. At the post-mortem nothing more was found than in the last case.

Another case of the same kind. H. B—, a very fine young man, six feet high, and broad and large in proportion. We could get no history of his illness, but he came under observation on October 13th. He had had no sleep on the preceding night, and when I saw him he was delirious, leaving his bed and wandering about the ward. He said that he had been in the hospital four days. Note that in the whole group of these diseases there is a tendency on the part of the patient to lengthen time. He nearly always thinks it is a longer time since you saw him last than it really is. Everything seems long to him. It is not so in some other acute diseases—in pneumonia, for example; but in this class of diseases—the acute specific—although the patient answers you quite rationally, and tells you correctly the day on which he came into the hospital, he thinks he has been in a much longer time than he really has.

The expression of this man's face was natural. He had no headache. He was able to leave his bed alone and easily. His tongue was moist and furred, not particularly red. He complained of some soreness of the throat, but swallowed without any difficulty. He had no cough. His skin was hot and moist, and covered over the chest and abdomen with a bright scarlet rash, which disappeared on pressure. On the arms, legs, back, and beneath the clavicle the rash was more dusky; and, after pressure, minute purple spots (petechiæ) were perceptible over the whole of the body. On the night of the 13th he was violently delirious; a man had to be with him to keep him in bed. He was restrained with difficulty, bit and struggled with great violence. At five in the morning he became quieter, his breathing became difficult about six, and at half-past eight he died.

On the 13th the rash had not spread to his legs, so that we may suppose that he had not been ill above four days. His post-mortem examination was made, and, as he died in the hospital, it was made very carefully. The notes of it, which I have here, occupy eight closely-written quarto pages.

I am not going to read them to you, for all that we found was just what we found in the last case—petechial spots under the mucous membrane of the stomach and the bowels, under the endocardium, under the pericardium, under the pleura. There was a little recent lymph at the base of the lung, probably of only a few hours' duration, and a spleen which weighed a pound and a half. There was a little congestion of his lung, such as might have resulted from his struggles; but beyond these appearances we found nothing.

Here is another case. A young man came under my care with a very little sore-throat, but covered with the rash, and with considerable febrile disturbance. After a violent fit of delirium, he sank exhausted, with a frequent, feeble pulse. He died in half an hour from the time he was running furiously about the ward. After death the appearances we found were precisely what I have described to you—enlarged spleen, subserous and submucous petechial spots, and that was all. In these cases of death from the general disease, you will have observed that in several there was a full, free, and even bright rash.

Sometimes, in place of the rash being bright red, it is more dusky. I told you it was dusky over part of the skin in one of the cases I have described. Sometimes there is more congestion of the lung. Sometimes, instead of violent delirium, there is muttering delirium. The girl, I told you, had muttering delirium, and then became violent again. Thus there may be extreme prostration instead of active delirium, or active delirium followed by extreme prostration. I have no account of the temperature in these cases, but it has been taken in similar cases, and has been found, it is said, to be high, very high; not, however, equal, so far as I am aware, to that which has been met with in acute rheumatism, but 104°, 105°, 106°. Some have supposed that in these cases the death is due to the high temperature. I am doubtful of that, myself, in scarlatina. I think that the death is due to the changed condition of blood. It is evidently very much changed, from the occurrence of the petechiæ; and the change in the tissues is dependent on the change in the blood. More observations on the temperature in these cases are required before its influence can be clearly admitted.

There are two other forms of scarlet fever

where there is only the general affection, to which you ought to have your attention directed: both are very mild forms. One of these is scarlatina without inflammation of throat—*scarlatina sine angina*. I doubt its existence; that is all I can say about it. There are cases without soreness of throat, but if you look into the throat, in all the cases I have seen, there is distinct redness and swelling of the tonsils, at any rate—considerable abnormal vascularity of the fauces and pharynx. I have often known patients to say they had no sore-throat, but when I have looked I have always seen abnormal vascularity. So I do not believe in scarlatina without any throat affection.

The other form is scarlatina without any eruption. About this, too, I have some doubts. Of the other I speak from having seen a large number of cases in which the patients have vowed that they had no throat affection at all, and yet I saw it. The subjective symptoms were absent, the objective were present. But it is difficult to prove the absence of the eruption. Certainly people sometimes have the disease with a very little and a very transient eruption, just a little scarlet blush, lasting a few hours, and probably there are some cases in which there is none.

Thus I have described to you cases of that form of scarlet fever in which the disease is the poisoned state of the system only, and I have described cases illustrating varieties of this form of scarlet fever, from the mildest to the gravest. In no case mentioned to day was there any grave local disease—nothing complicating the general disease. What is the treatment of uncomplicated scarlet fever with trifling local specific process? For scarlet fever proper, for the poisoned condition of the system, so far as I know, we have no remedy. There are those who say ammonia is the remedy; there are who say that hydrochloric acid is the remedy; and so on with a variety of drugs. But at the present moment my experience tells me that we have no remedy for the general disease. We can only act upon the broadest general principles of calming the patient when excited; of stimulating him, to keep his heart beating, when he is exceedingly weak; of cooling the surface when the heat is excessive. Give him pure, fresh air to breathe. It is a disease that runs a definite course, and if you can keep the sufferers alive for a certain time

they get well from that general disease which killed some of our patients. So you watch for the symptoms which threaten death, and endeavor to avert them. The very grave cases are hopeless from the first. For the mild cases little treatment is required. A cool room, light clothes, unstimulating diet, a mild aperient, a little chlorate of potash, which seems to allay the irritation or inflammation of the throat, and that is all you need do. Some give a little dilute mineral acid; sulphuric acid was all that used to be employed at the Fever Hospital when I was there. I think myself that the best is the chlorate of potash drink. I put a drachm of the salt into a pint of barley-water, and let the patient sip it down as he pleases.

You will see that it is very different when I come to speak of the complications of scarlet fever. For some of the aggravations of the acute specific process, for some of the throat affections, we may do a great deal, and there we often save life directly; but for the disease itself, that which is the root of the matter, I repeat, so far as I know, you can do nothing. By the chlorate of potash you may do something towards allaying the throat affection; by a mild aperient you may allay a little the febrile disturbance which would be increased by confined bowels; by keeping the room well ventilated you prevent any increase of fever from the room becoming too close, and its air impure. And all the time you must watch the state of the urine, the skin, and the throat. One point I desire to impress on you—namely, the great importance of changing the clothes of the patient, as well as the air of the room. The blankets of the bed should be changed frequently, as well as the body-linen and sheets.—*Lancet*, Jan. 8th, 1870.

#### HOSPITAL NOTES AND GLEANINGS.

**Pyæmia, with Singular Eruptive Symptoms.**—There are two points of great interest about the following case. The occurrence of pyæmia without an assignable external cause is always an interesting thing; and in this instance, neither in life nor at the post-mortem examination could any such cause be detected. From the very plain evidences of severe blood-poisoning which the case presents, one is constrained to think of possible contamination of the system by foulness of the atmosphere



in which the girl had been living; and in respect to this it is worthy of note that she was residing in some servants' offices, at a club, which have been unfavourably distinguished by the number of cases of disease more or less dependent upon miasmatic influences which have occurred for some years past among their inmates. Another point of interest is the peculiar eruption; it presented, at one stage, no small superficial resemblance to smallpox, but this rapidly disappeared, and the bullæ which were developed along with the pustules in many cases contained reddish serum, and were of considerable size. Dr. Anstie believes such a complication of pyæmic poisoning to be very rare. Finally, this case repeats the warning given by so many others of the insidious manner in which pyæmia develops itself, and the especial frequency with which its early symptoms may be mistaken for those of rheumatism.

Emma W—, aged twenty, admitted September 10th; scullery-maid at a club. She complained, on admission, of pain in her joints, and said she had had "rheumatism" for several days. Temperature  $101^{\circ}$ . Left eyelid a good deal ecchymosed. She was treated at first for rheumatism, being put on beef-tea, milk, &c., and ordered ten grains of acetate of potash and thirty grains of bicarbonate of potash every four hours, and ten grains of Dover's powder at night. She was a large, stout, healthy-looking girl. Good sleep was obtained that night, and in the morning no visible change could be observed.

Sept. 12th.—To-day she is not quite so well. Temperature  $102^{\circ}$ . On the right side of the face there are a couple of red spots.

13th.—All over the face and trunk are a number of bullæ and pustules, in various stages. The patient slept badly last night, and had one attack of rigors. Temperature  $104^{\circ}$ ; sickly odour about her. Tongue foul, and coated white. Tenderness of joints; left knee much swollen. On the dorsum of the right hand there is an inflammatory blush. There is a similar one over the back of the left ankle. Motions passed involuntarily; they are extremely yellow and very offensive. At this stage Dr. Anstie ordered eight ounces of sherry per diem, and two-grain doses of quinine every four hours; but no good effect was produced, and the patient passed

into high delirium. This continued all night. There was much diarrhoea, and a very offensive smell about the patient.

On the following morning, the 14th, the pustules and bullæ were still more numerous, the tongue was dry and brown, and the lips and teeth coated with sordes. Death occurred at 5 P. M.

*Post-mortem examination.*—Heart normal; both lungs studded at the base with patches of lobular pneumonia, in various stages. These were about the size of a sixpence. Most of them were in the first or second stage, but one or two were soft, broken down, and whitish-gray. Stomach healthy; kidneys congested and enlarged, each weighing seven ounces. Spleen small and congested. The left knee-joint contained a large quantity of thin, yellow pus; and an incision made into the inflamed dorsum of the right hand also gave exit to a quantity of pus.—Lancet, Jan. 22, 1870.

*Extroversion of Bladder.*—Mr. Wood operated, Jan. 1, 1870 at King's College Hospital, for the second time, on a lad suffering from extroversion of the bladder. On a previous occasion, he had taken flaps from the tissues of the abdominal wall, one from each side (with the skin surface next the opening), and one from above, which he turned down on the other two, its raw surface being in apposition with the raw surface of the others. The lad was in good health, and, so far, everything had gone well. Mr. Wood now proceeded, by making flaps from the lower part of the abdomen and the scrotum, to cover in the remaining part of the opening, and form a roof to the penis. He removed the scrotum in one flap, exposing the tunicae vaginales testium. The latter were covered from the thighs and under surface of the penis. A little difficulty was met with; but Mr. Wood remarked that experience had shown that the testes were well protected by the overhanging pubes, and would soon be covered with granulations. Mr. Wood mentioned the anatomical conditions met with in these cases of epispadias, and pointed out the developmental changes going on in the foetus at the time when the arrest probably occurs (about the second month), and gave his experience of his operation for the relief of the deformities. He had now operated on ten cases; in all of them, with the exception of

two, great benefit had resulted. In one case, that of a young girl, after a comparatively slight plastic operation, uræmic poisoning followed, and the child died; afterwards, the kidneys were found extensively diseased, and one ureter quite blocked up. In the other case, after operating, the child had violent fits of coughing, and the stitches gave way. He thought it better to defer proceedings till the child had more self-command. As regards the frequency of ectopia vesicæ in females, he had met with it in the proportion of about one in twenty. He thought its infrequency very remarkable. Possibly a certain number of cases in females were carefully concealed from observation. He had been represented as attempting to form a perfect bladder which would retain urine in the upright posture of the body as well as when lying down. This was manifestly impossible. The dartos of the scrotum would never make a voluntary muscle. He had, however, accomplished this much, that when the patients were in bed, a certain amount of urine gravitating to the fundus of the bladder would be retained; and, at all times, a simple instrument only was required to be worn, instead of a very elaborate one. Some males were compelled to wear "petticoats," on account of the malformation of parts; this, of course, was obviated. Mr. Wood illustrated the steps of his operation on the black board.—*Brit. Med. Journ.*, Jan. 15, 1870.

## MEDICAL NEWS.

### DOMESTIC INTELLIGENCE.

*Alumni Association of the Medical Department of the University of Pennsylvania.*—The graduates of the Medical Department of the University of Pennsylvania are invited to meet in the College Hall on Commencement Day, Friday, March 11th, at 5 o'clock P. M., to form an Alumni Association. It is hoped that the meeting will be largely attended, as its object is commendable.

*Jefferson Medical College of Philadelphia.*—We have before us the catalogue of this institution for the session 1869-70, from which it appears that the number of matriculants for the session is 435.

### *Philadelphia Dispensary, for the Medical Relief of the Poor, instituted April 12, 1782.*

—The annual report for 1869, of this ancient and most valuable institution, shows that it continues quietly and unostentatiously to pursue its useful course. The object of the institution is to afford medical relief to the worthy (not the lowest class of) poor, in those cases where removal to a hospital would, for any approved reason, be ineligible. Pecuniary aid, under close limitations, is occasionally afforded, trusses and surgical appliances furnished, and in some cases of great exigency, nursing aid afforded. Fourteen thousand five hundred patients have been treated during the year.

*Professor Nathan R. Smith.*—This eminent surgeon has resigned the chair of Surgery in the University of Maryland, which he has filled with great ability for the past forty years.

*Medical Instruction in Philadelphia during the Summer of 1870.*—Ample facilities will be afforded for the instruction of medical students who may spend their summer months in this city. In addition to the regular spring and fall courses of lectures at the University of Pennsylvania and the Jefferson Medical College, several private schools will be open; of these we have received the announcements of the following:—

*Philadelphia Summer School of Medicine.*—Robert Bolling, M. D.; James H. Hutchinson, M. D.; H. Lenox Hodge, M. D.; D. Murray Cheston, M. D.; Geo. C. Harlan, M. D.; I. Minis Hays, M. D. The Sixth Session of this School will begin March 1st, 1870, and will continue until October.

Clinical Instruction, Dissection, and Operative Surgery from the first of March to the first of October.

Lectures and examinations daily during April, May, June, and September.

Examinations on all the branches taught at the University of Pennsylvania.

Regional Anatomy.—Lectures and Demonstrations by H. Lenox Hodge, M. D.

Percussion and Auscultation in Diseases of the Lungs and Heart.—Lectures and Clinical Examination of patients, by James H. Hutchinson, M. D.

Diseases of the Eye and Ear.—Lectures upon the Anatomy, Physiology, and Dis-

cases of the Eye and Ear, by George C. Harlan, M. D.

**Urinary Deposits and Tests.**—Students will be instructed in the microscopical and chemical examination of the urine, and will be enabled to make themselves familiar with the necessary manipulations, by James H. Hutchinson, M. D.

**Dissections and Surgical Operations** may be practised by the members of the class to the best advantage.

**Special Clinical Instruction** will be given the class at the Pennsylvania Hospital, the Children's Hospital, and the Dispensary for Diseases of the Heart and Lungs.

Office students are received, through their preceptors, or upon their own application, for a part or the whole of a three years' course of study. They are admitted to the Winter Examinations and to the Summer School of Medicine, and thus have the benefit of a systematic course of examinations during both the winter and summer. They are instructed *practically* in Anatomy, Bandaging, Dressing of Fractures, Operative Surgery, Percussion, and Auscultation, Obstetrics, and Examination of Urine. They are also enabled to attend women during confinement.

Clinical Instruction is provided for them at the Pennsylvania Hospital, Philadelphia Hospital, Children's Hospital, and Wills Hospital for the Eye.

Bed-side Instruction during February, March, and April, is given them in the wards of the Pennsylvania Hospital by Dr. James H. Hutchinson.

Winter Course of Examinations will begin with the Lectures at the University of Pennsylvania in October, and will continue till the close of the session.

Candidates for admission to the army and Navy, and those desiring promotion to a higher grade, may obtain private instruction.

**Jayne Street Medical Institute.**—George Pepper, M. D.; William Pepper, M. D.; Harrison Allen, M. D.; Edward Rhoads, M. D.; James Tyson, M. D., will continue their Course of Annual Instruction as heretofore.

Winter Examinations will begin with the lectures at the University in October, and continue throughout the Session, embracing all the branches taught at the University.

Summer Examinations will also be given during the months of April, May, June, and September, in connection with the study of the authorized Text-books.

Office students will be received, through their preceptors or on their own application, for the whole or part of a three years' course of study. They will have the advantage of the Winter and Summer Examinations. Special bed-side instruction will be given them by Dr. Rhoads and Dr. W. Pepper; and Clinical instruction will also be provided for them at the Pennsylvania Hospital, and the Wills Hospital for the Eye. They will also have the advantage of the Special Courses of Lectures delivered by the different members of the Association.

Dr. H. Allen will give instructions in Minor Surgery, including the use of instruments for the examination of the eye, ear, nose, and throat.

Dr. George Pepper will deliver a course of lectures upon the Diseases of Women.

Clinical Instruction upon the Diseases of Women will also be given in connection with the Lying-in Charity.

Dr. Rhoads will deliver a course of lectures on Diseases of the Heart and Aorta, clinically considered, as independent affections, and in their relations to other diseases. The course will be in immediate connection with the wards of the Philadelphia Hospital, and will embrace lessons in Physical Examination of the Heart and Lungs.

Dr. Tyson will deliver a course, including lectures on the physiology and pathology of the blood and urine, the minute structure of all important physiological and pathological tissues, with the theories of their development, and the special methods required for the demonstration and preservation of each.

Dr. William Pepper will deliver a course of lectures on the Diagnosis and Treatment of Diseases of the Nervous System, clinically considered, embracing instruction in the practical application of electricity in disease. The lectures will be in immediate connection with the wards of the Philadelphia Hospital.

Bed-side Instruction, embracing careful lessons in medical diagnosis, will also be given by Drs. Rhoads and W. Pepper to classes of limited size in the wards of the Philadelphia Hospital.

*Summer Course of Lectures.*—William Pepper, M. D., Diseases of the Nervous System; Frank F. Maury, M. D., Clinical Surgery; Edward Rhoads, M. D., Diseases of the Heart and Aorta; George Pepper, M. D., Diseases of Women; Samuel W. Gross, M. D., Orthopaedic Surgery; James Tyson, M. D., Microscopy. These lectures will be delivered during the months of April, May, and June.

Those on Diseases of the Nervous System, Clinical Surgery, Orthopaedic Surgery, and Diseases of the Heart and Aorta, will be clinical in character, and will be given in immediate connection with the wards of the Philadelphia Hospital, and of the Philadelphia Orthopaedic Hospital.

The other lectures will be delivered at convenient hours.

*Medical Chemistry.*—Dr. H. B. Hare will deliver a course of lectures during the months of April, May, and June, on the general characteristics of the Urine in health and disease; especially with reference to disorders of the kidneys and bladder.

The various methods of qualitative and quantitative analysis of the urine, as well as its microscopic appearances, will be demonstrated before the class, who will thus have an opportunity of becoming familiar with all the modes of manipulation necessary in the clinical examination of the urine.

The chemical characters of the other secretions of the body will also be demonstrated in their healthy and morbid conditions.

The course will be accompanied by drawings and specimens illustrative of the pathological changes of the kidneys, bladder, and urine.

The lectures will be delivered at the N. W. corner of Ninth and Chestnut Streets, third story.

*Philadelphia School of Anatomy, Chant Street, Tenth Street above Chestnut.*—The following courses of lectures will be delivered in this institution during the Summer Session of 1870: Anatomy, descriptive and surgical, and Operative Surgery, by Dr. W. W. Keen; Bandaging Fractures, and Fracture Dressings, by Dr. O. H. Allie.

Dissection will be carried on under the direct and personal supervision of the Assistant Demonstrators of Anatomy. The

Dissecting Room will be open also during all the month of March, with abundant material.

Special arrangements may be made for private courses by candidates for the Army or the Navy, or by others.

*Diseases of the Chest and Larynx.*—Dr. Herbert Norris will give in connection with the clinic at the Dispensary, No. 716 Catherine Street, a course of instruction in the diagnosis and treatment of diseases of the Larynx, Lungs, and Heart; beginning March 21st, and continuing tri-weekly for three months.

Students will thus have the opportunity of becoming practically familiar with the diagnosis of these diseases, by means of auscultation and percussion, and also of acquiring facility in the use of the laryngoscope, and in the topical application of remedies to the larynx.

**OBITUARY RECORD.**—We have to record this month the death, at Lexington, Ky., on the 20th of January last, of BENJAMIN WINSLOW DUDLEY, M. D., at the mature age of 85 years. Dr. D. was one of the most eminent surgeons of his day, and was conceded to be the ablest surgeon in the Mississippi Valley. His great reputation attracted to him most of the operative surgery of that extensive region, and his success, especially as a lithotomist, was remarkable. For many years he filled the two chairs of Anatomy and Surgery in the Medical Department of Transylvania University, and his ability as a teacher of those branches largely contributed to the success of the school. He did not contribute much to the literature of our science, but the few papers he has published make us regret that he did not write more. In his social relations he was universally esteemed for his great worth and public spirit, which secured to him many steadfast friends.

#### FOREIGN INTELLIGENCE.

*Death from Chloroform.*—J. P., farmer, æt. 68, was admitted into the York County Hospital for the purpose of having partial amputation of the foot performed, on account of disease of the bones. Chloroform was administered by the house-surgeon previously to the operation being performed, on January 11th. Scarcely a drachm had

been inhaled, when the patient suddenly became rigid, and his pulse stopped. Every exertion was made for his restoration, and artificial respiration was kept up for more than three-quarters of an hour, but without avail.—Brit. Med. Journ., Jan. 22, 1870.

*On Death from Chloroform.*—On Feb. 1st, Dr. RICHARDSON gave a most important and highly practical discourse to a very large class, on the cause of death from chloroform, and the way to avoid accidents and meet emergencies which may arise in the administration of this anæsthetic.

Rapid narcotism, according to the practice of Sir James Simpson, Dr. Richardson believes to be best and safest, as this sensation is abolished without paralyzing the muscles. A pigeon was rapidly and profoundly narcotized with chloroform, and then it was shown how readily the muscles could be roused by the galvanic battery, so that the bird flapped its wings, and yet when the stimulus was withdrawn, was as fast asleep as ever.

In another experiment a rabbit was killed by chloroform, and the thorax being then opened, the heart was seen to continue beating for many minutes, the lungs being bloodless and collapsed. This experiment showed that death by chloroform is death from the lungs and not from the heart, and the surest restorative is to inflate the lungs by artificial respiration. The muscles of inspiration fail before those of expiration, and to galvanize these last named muscles exhausts what little irritability they may still retain, and clinches the death of the patient effectually.

Dr. Richardson rather feared to give chloroform in persons with dilated right heart and overful veins; in other cases of tubercular disease, renal disease, and valvular disease of the heart, he had often given the anæsthetic without anything like an accident.—Med. Press & Circular, Feb. 9, 1870.

*Dust and Disease.*—We invite especial attention to the following summary of a most interesting and instructive lecture recently delivered at the Royal Institution of Great Britain, by Professor Tyndall.

The learned professor began by stating that a sunbeam on entering a dark room becomes visible by illuminating the particles of dust floating therein. A beam of powerful light, such as that of the electric lamp

will prove the existence of these floating particles in the air of this room, or, indeed, in that of any other, even of the best ordered drawing room in London, although they are invisible by the light of ordinary candles or gas. Some months ago, when he was engaged in a course of experiments on the action of light upon various vapours, he found this dust exceedingly troublesome. The air was wholly loaded with it, and although in his experiments it was of great importance to have the air entirely free from it, it became a matter of considerable difficulty to get rid of it. An "experimental tube" was filled with air which had been passed through tubes containing fragments of glass wetted with concentrated sulphuric acid, and marble wetted with a strong solution of caustic potash; but although the air was thoroughly dried by this means, the particles of dirt were carried along with it, and a beam of light passed through the tube discovered them in quantities as great as in common air. But it was found that by passing the air over a flame before letting it enter the drying tubes, every particle of dust was destroyed, and the beam of light passed through the "experimental tube" was *invisible*, owing to the absence of any illuminated particles. What did this prove? It showed, to his own astonishment, that this floating dust consisted of particles of combustible, and therefore organic matter—that the air which constantly surrounds us, which we are continually breathing, is loaded with living organisms, which are of necessity constantly passing into our lungs—that the dirt of the air of London is organic, and not, as he had supposed, of the same nature as the sand of the desert of Sahara, inorganic, incombustible. To make this matter quite certain, Mr. Valentin, of the Royal College of Chemistry, constructed for him a gas furnace, so arranged as to heat a platinum tube and a roll of platinum gauze; the air was made to pass through this tube and gauze, so as to insure the contact of the dust with the hot metal, and the result is given by the following table:—

Quantity of air.	State of platinum tube.	State of experimental tube.
15 inches.	Cold.	Full of particles.
"	Red-hot.	Optically empty.
"	Cold.	Full of particles.
"	Red-hot.	Optically empty.
"	Cold.	Full of particles.
"	Red-hot.	Optically empty.

That is to say, when the air was passed cold into the experimental tube, the floating



particles were not destroyed, and passed along with the air; but when the particles were consumed by the hot platinum, the experimental tube was "optically empty," there being no floating dust in it for the beam of light to illuminate.

The following table gives the results of experiments in which the air was allowed to pass into the experimental tube under various conditions of speed and temperature:—

Quantity of air.	State of platinum tube.	State of experimental tube.
15 inches, slow.	Cold.	Full of particles.
" "	Red-hot.	Optically empty.
" quick.	Red-hot.	A blue cloud.
" "	Intensely hot.	A fine blue cloud.

The cloud which appeared in the experimental tube when the air was passed quickly through the platinum was the smoke of the particles burned in the furnace. He had failed in his attempts to burn the particles in the open air by intense heat, but a flame of a spirit lamp held immediately under the electric beam gave a result which caused him the most intense astonishment. In common with every chemist he had hitherto considered the flame of a spirit lamp to be entirely smokeless. What, then, was his surprise to find that, on holding the flame under the beam, volumes of intensely black "smoke" were given off, blacker than he had ever seen issue from the funnel of a steamer! He tried several other flames; he burned spirit of wine on cotton wool; he tried the flame of a Bunsen's burner with a tall chimney, but always with the same result. Wreaths of the blackest "smoke" ascended through the beam of light, showing themselves in the distinctest manner. The question then arose—Could this blackness be smoke at all? Could no other cause be assigned to explain the phenomenon? To settle this question, he tried a flame of pure hydrogen gas, in which it was impossible that carbon could be to make real smoke. But, on this being held beneath the electric beam, the same black wreaths ascended. A mass of red-hot iron gave the same result. What, then, was this darkness which was shown to exist in cases where smoke was impossible? It was simply the darkness of stellar space—the darkness caused by the absence of organic dust, showing that pure air is dark by virtue of its own intense transparency. Nothing could demonstrate more clearly the invisibility of the medium which renders all things visible. The flame held under the beam destroys the floating parti-

cles, and a stream of pure air ascends across the horizontal beam, which, jostling aside the dust-laden air, causes a black band of pure transparent air free from illuminated dust (in appearance exactly like smoke) to take its place across the beam. But it was also discovered that it was not necessary to consume the dust in order to produce pure air. It was found that a sphere of heated copper held beneath the beam of light produced the same "smoky" appearance, and that, too, even after the temperature of the copper had fallen below that of boiling water. Upon this it was suggested that a sphere of boiling water would produce the same result, and this was found to be the case, although in a less degree. The reason of this is simple; the heated body quickly heats the air immediately surrounding it, but not the particles; the pure hot air ascends and makes its dark track across the beam, but the particles are left behind.

The learned professor then showed that any gas, provided it was free from these floating particles of dust, would produce the same dark mark across the beam of light. He took a common glass shade, and placed it with its mouth downwards so that the beam of light should pass right through it from side to side. The shade being full of the air of the room, the light was of course visible all the way through it. He then introduced into the upper part of the shade, above the beam of light, a tube connected with a reservoir of hydrogen gas. The hydrogen soon filled the upper part of the shade, and, occupying more and more space as its volume increased, it speedily filled the greater part of the shade, the beam of light in the shade fading from the sight of the spectators as the hydrogen occupied the space traversed by it. The shade being removed, the beam of light reappeared instantaneously in its place, but on the hydrogen being allowed to escape, a darkness as of a cloud of smoke passed across the beam, which immediately after its passage resumed its usual unbroken aspect. A gentleman present seemed inclined to question the success of this experiment, but the learned Professor partially repeated it, and completely proved his point. Having then observed that any other gas—*e. g.*, common coal gas—would serve equally well for this experiment, he said that, seeing that the air we are constantly breathing is so entirely laden with these particles of organic

matter, the wonder is that so small a portion of it is hurtful to human life. For some time an opinion had prevailed that contagious diseases were spread by a malaria; it was believed that matter in a state of decay entered people's bodies and produced in them conditions of decay like to its own. It was seen that the process of fermentation went on in this way, and that a little leaven leavened the whole lump. Why, then, it was asked, should we not believe that diseases propagate themselves thus? But in 1836 an answer was given to this question by the discovery of the yeast plant, and fermentation was shown to be a process of life instead of one of decay. In 1837 Schwann discovered that meat highly heated and excluded from air never putrefied. Putrefaction is, then, the result of something derived from the air, which has the power of propagating itself in the body, and must be a living organism such as the dust of the air has been shown to contain. The "germ theory" of the propagation of disease has been slowly gaining ground in the opinions of medical men, and, at a time when it was thought improbable by many of them, the president of this institution was one of its ablest advocates. These germs floating in the air enter the human frame, and, growing there, produce various disorders. In this way the Asiatic cholera, from a small beginning in the delta of the Ganges, in seventeen years occupied nearly the whole world. And the action of these germs has its exact counterpart in another part of nature's field; for as an acorn will produce an oak bearing a crop of acorns each capable of reproducing its parent tree, and so a whole forest may spring from a single seedling, so a germ of smallpox lodged in the body will produce a crop of pustules each one capable of reproducing germs like to the original one. Medical men know well how important it is to exclude the air from abscesses when they are being operated on, and instruments are specially constructed for this purpose; yet although the pus extracted on the first operation is sweet, on the second and all other operations it is generally putrescent, and swarming with living organisms called *vibrios*. This is caused by the germs clinging to the trocar, and by it introduced into the abscesses, flourishing therein under favourable conditions of temperature and food. The only way to "clean" the canula and trocar of these germs is to heat the instruments as highly as their temper will allow. It was

an ascertained fact that the troublesome hay-fever was caused by these same *vibrios*.

Having shown that it is useless to try to blow away the dust from a beam by means of bellows, since the dust from the bellows immediately replaces that blown away, the learned professor proceeded to experiment on the state of the human breath as it issues from the lungs. His lungs being full of the common air of the room, he breathed through a heated tube so as to cause the breath to ascend through the beam of light, at the same time preventing any cloud of condensed aqueous vapour. At first no extraordinary appearance was visible, but soon the familiar dark clouds denoting the absence of illuminated dust appeared. He contended that this showed the history of the air in the lungs as clearly as if his skin and breastbone were transparent. The air which entered the lungs at the end of taking breath, being also the first to leave them on expiration, had not had time to deposit its dirt; but the air which entered the lungs first, and left them at the end of the expiration, having deposited its dust at the bottom of the lungs, showed its freedom from floating particles by its smoke-like track across the beam. Again, he filled his lungs with air filtered through cotton wool, and, on expiration, the dark clouds were seen from beginning to end. This proves that a filter of cotton wool will exclude these particles, as might also be seen by filling the nozzle of a common bellows with tightly packed cotton wool, and directing the air across a beam of light. Instinctively acting on this principle, a medical man, on entering an infected atmosphere, places his silk handkerchief over his mouth and nostrils; and, taking this hint, Dr. Bence Jones had tried the above experiment, substituting silk for cotton wool, and had obtained substantially the same result, though in a less perfect degree. In conclusion, the learned professor recommended the use of a respirator of cotton wool as a means of giving pure air to the lungs to all who are likely to be breathing germ-laden atmospheres; and at the present time, when London was full of scarlatina, he would recommend these respirators as the most efficient protection; and, armed by one of these, he declared his perfect willingness to enter any atmosphere, however infected it might be by scarlatina or other diseases.—*Med. Times and Gaz.*, Jan. 29, 1870.

## JUST ISSUED:

### I.

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